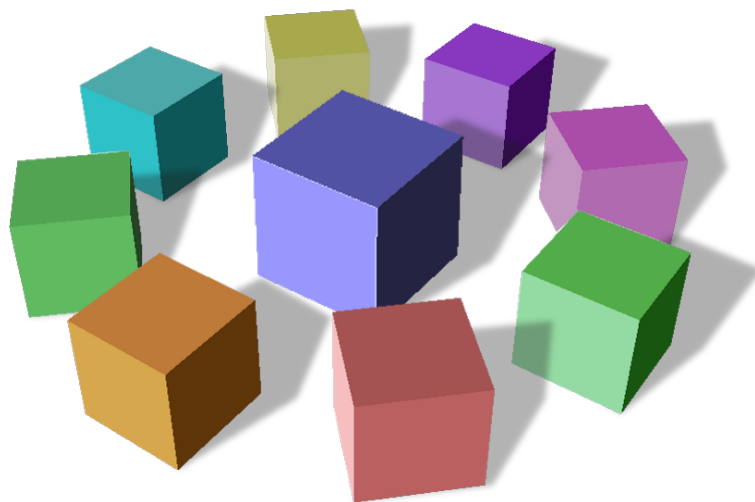


RemoteBox

Version 1.4

Open Source VirtualBox Client with Remote Management



Documentation

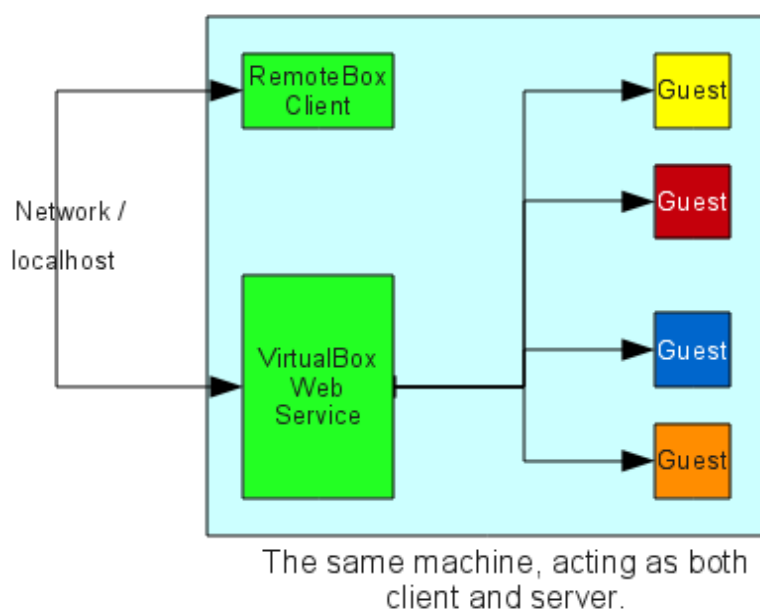
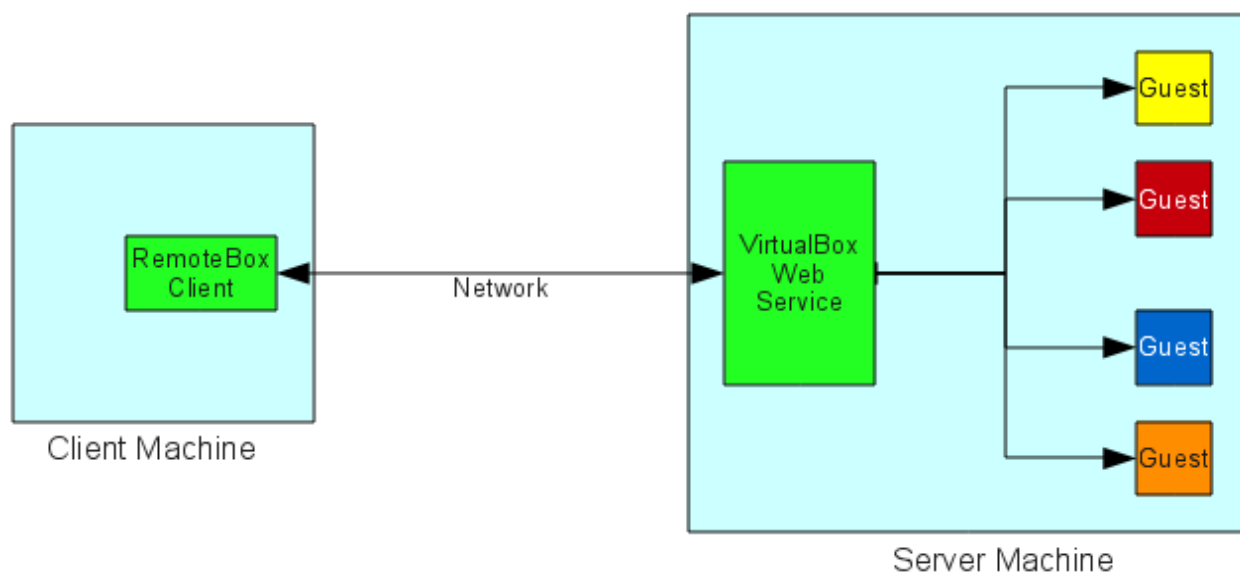
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1 Introduction

RemoteBox is a graphical (GTK) VirtualBox client, which lets you administer virtual machines (also known as guests) which reside on a remote server or even on your local machine if desired. You may for example have a server on the internet, a server at home or a server at work running VirtualBox but want to have the convenience of managing the guests easily from your own machine, without having to directly log into the server. In VirtualBox terminology, the guests run in headless mode which means their displays do not open on the server but are available over RDP so you can connect to them from any client and use the guest as if it was local.



The goal of RemoteBox is to provide a GUI that should be familiar to VirtualBox users whilst allowing

them to administer a remote installation of VirtualBox. It does this via the VirtualBox API and SOAP interface which are exposed when running the VirtualBox web service (i.e. vboxwebsrv). You can also use RemoteBox simply as an 'alternative' interface for managing VirtualBox on your local machine. RemoteBox runs on a variety of operating systems including Linux, *BSD and MacOS X and the server can run any operating system supported by VirtualBox.

2 RemoteBox Requirements

This section provides an overview of the general requirements of RemoteBox. Additional information specific to your operating system or distribution may be found below.

- Perl v5.8 or newer is recommended
- gtk2-perl v1.203 or newer is recommended (must be built against Gtk2 v2.22 or newer)
- SOAP::Lite perl module v0.710.10 or newer is recommended.
- An RDP client if you want to connect to the remote display of guests. The `rdesktop` is recommended.
- VirtualBox 4.2.x installed on the server
- The Oracle Extension Pack should also be installed on the server. The pack may be obtained from <http://www.virtualbox.org/wiki/Downloads> Follow the instructions on the page to install them.

2.1 Fedora

Use your preferred package management tool to ensure the correct RPMs are installed. For example, running `yum` as the root user:

```
yum -y install perl-Gtk2 perl-SOAP-Lite rdesktop
```

2.2 Mandriva / Mageia

Use your preferred package management tool to ensure the correct RPMs are installed. For example, running `urpmi` as the root user:

```
urpmi perl-Gtk2 perl-SOAP-Lite rdesktop
```

Warning: Some editions of Mandriva seem to ship an unstable beta version of Perl-Gtk2 which can cause RemoteBox to behave or fail in unusual ways. Due to this, bug reports will only be accepted if they can be reproduced on another distribution.

2.3 OpenSUSE

Use your preferred package management tool to ensure the correct RPMs are installed. For example, running `zypper` as the root user:

```
zypper install perl-Gtk2 perl-SOAP-Lite rdesktop
```

2.4 Ubuntu / Mint & derivatives

Use your preferred package management tool to ensure the correct DEBs are installed. For example, running `apt-get`:

```
sudo apt-get install libgtk2-perl libsoap-lite-perl rdesktop
```

2.5 Mac OS X

Mac OS X typically does not come with the vast majority of dependencies for running complex UNIX graphical apps, so usually a 3rd party repository system is required. MacPorts (<http://www.macports.org>) is known to provide everything you need to get RemoteBox up and running. Follow the instructions on the MacPorts web site to get it set up and installed.

You will also need to ensure that X11 and XCode are installed on your Mac. If not, they can be found on your operating system DVD or downloaded from Apple.

Install the required MacPorts as follows:

```
sudo port install p5-gtk2 p5-soap-lite rdesktop
```

Important: You will need to modify the very first line in the `remotebox` file so that it uses the MacPorts implementation of Perl. Open the file in a text editor and replace the first line as follows:

```
#!/usr/bin/perl  
  
replace with  
#!/opt/local/bin/perl
```

2.6 NetBSD

Use your preferred package management tool to ensure the correct packages are installed. For example, running `pkgin` as root:

```
pkgin install p5-gtk2 p5-SOAP-Lite p5-libwww rdesktop
```

Important: You will need to modify the very first line in the `remotebox` file so that it uses NetBSD's implementation of Perl. Open the file in a text editor and replace the first line as follows:

```
#!/usr/bin/perl  
  
replace with  
#!/usr/pkg/bin/perl
```

2.7 FreeBSD

Use your preferred package management tool to ensure the correct packages are installed. For example with `pkg_add` as root:

```
pkg_add -r p5-Gtk2 p5-SOAP-Lite rdesktop
```

Or alternatively you can use the FreeBSD ports system.

2.8 Solaris / OpenSolaris / OpenIndiana

It is recommended that you use the OpenCSW (<http://www.opencsw.org>) repository with Solaris as it provides all the necessary dependencies for you. **You must** ensure that the standard Solaris package called 'SUNWmlib' is installed **before** installing any of the dependencies from OpenCSW.

Once OpenCSW is configured, please install the following packages as root using `pkgutil`, for example:

```
/opt/csw/bin/pkgutil -i pm_gtk2 pm_soaplite rdesktop
```

Important: You will need to modify the very first line in the `remotebox` file so that it uses OpenCSW's implementation of Perl. Open the file in a text editor and replace the first line as follows:

```
#!/usr/bin/perl
```

replace with

```
#!/opt/csw/bin/perl
```

3 RemoteBox Installation

Please ensure you have installed the dependencies mentioned in Chapter 2 and consulted the relevant section for your operating system. Assuming you have unpacked the tarball, simply change into the directory and run `remotebox` as follows:

```
./remotebox
```

Assuming all is well, you should be presented with the RemoteBox window. If not, please ensure you have the relevant dependencies installed. The RemoteBox directory can be placed anywhere you prefer or even renamed providing it retains it's layout. If you have not already configured the server, please do so now.

4 Configuring the Server

VirtualBox should be installed on the system acting as the server. You do not need VirtualBox installed on the client system, unless the same machine is both the client and the server. Also note that the client and server do not have to run the same operating system. RemoteBox for example could be running under Linux whilst connecting to VirtualBox on a server running Windows. Please follow the instructions provided with VirtualBox or on the web site if you are not sure how to install VirtualBox for your server's operating system. It is also important that you install the Oracle Extension Pack for VirtualBox. The extension pack provides features such as remote desktop display and PXE booting. Without it, RemoteBox may not function as expected. You can download the Oracle Extension Pack from the VirtualBox website.

4.1 Setting up the Web Service

Assuming you have installed VirtualBox correctly on your server, the next step is to setup and run the VirtualBox web service. The web service is not for use with a web browser, but provides a means for RemoteBox to "speak" to VirtualBox on another system. Additional information on configuring the web service can be found in the VirtualBox manual but some additional guidelines are provided here.

4.2 Manual Web Service Start-Up

Unfortunately the web service is not integrated as a system service for all operating systems, in particular Windows. In this case the web service must be started manually, unless you want to implement your own custom solution on Windows. Manual start up can also be useful for debugging, however if your operating system supports it as a standard system service, it's recommended you use that. This is discussed in the following sections.

To manually start the web server, the `vboxwebsrv` command is used, which is installed as part of your VirtualBox installation on the server. If this command is not in your default path, you will need to change to the directory where it's installed and run it from there. This is usually within the same directory as VirtualBox itself was installed. It's important that the command is run as the same user whose virtual machines you want to administer. For example, if virtual machines were created as the user *john*, but I ran the web service as the user *mike*, I would not be able to see *john*'s virtual machines. So I must also run the web service as *john*.

Open a command prompt or terminal and type in the following:

```
vboxwebsrv -t0 -H <ip>
```

Replace <ip> with the IP address of your machine. If you are not sure what your IP address is, you can use the `ifconfig` command on UNIX-like systems including MacOS X or use the `ipconfig /all` command on windows. This will start the web service running on port 18083 by default, with timeouts disabled. It's highly recommended that you do not enable timeouts when using RemoteBox.

4.3 Running as a System Service on Linux

The web service init script is automatically installed and is usually located in `/etc/init.d/vboxweb-service`. Before you start the web service, you must edit or create its configuration file: `/etc/default/virtualbox`. The configuration file supports several options but should contain at least the following:

```
VBOXWEB_USER="<myuser>"
VBOXWEB_TIMEOUT=0
VBOXWEB_HOST=<ip>
```

Where <myuser> is the user that you want to start the web service as and <ip> is the IP address that the service should listen on. Starting, stopping and enabling the automatic start up of services on boot, varies between Linux distributions so you should consult your distribution's documentation if you are not sure how to do this. As an example for Fedora and compatible distributions you would do:

```
service vboxweb-service start
chkconfig vboxweb-service on
```

4.4 Running as a System Service on Solaris

On Solaris the web service is automatically integrated into the SMF. You should configure the service to start as the user whose guests you want to administer and ensure the service starts up with timeouts disabled. This can be done as follows:

```
svccfg -s svc:/application/virtualbox/web-service:default setprop config/user=<myuser>
svccfg -s svc:/application/virtualbox/web-service:default setprop config/timeout=0
svcadm refresh svc:/application/virtualbox/web-service:default
```

To start the web service, do the following:

```
svcadm enable svc:/application/virtualbox/web-service:default
```

4.5 Running as a System Service on Mac OS X

A standard plist file is included with VirtualBox which is usually located in:

```
$HOME/Library/LaunchAgents/org.virtualbox.vboxwebsrv.plist
```

Edit the file with a text editor and change the `Disabled` key from `true` to `false`. The service can then be started by typing:

```
launchctl load ~/Library/LaunchAgents/org.virtualbox.vboxwebsrv.plist
```

4.6 Disabling Authentication to the Web Service

Disabling authentication is not recommended (or indeed not required) because it will leave your guests vulnerable, however it may be useful for debugging purposes particularly if you are experiencing trouble logging in. To disable authentication, execute the following command on the server as the user you want to disable authentication for:

```
vboxmanage setproperty websrvauthlibrary null
```

Then, when connecting with RemoteBox simply leave the username and password options blank.

5 Using RemoteBox

This section describes some basic principles of using RemoteBox, with particular emphasis on where RemoteBox differs significantly from VirtualBox. RemoteBox supports many of the features of the standard VirtualBox GUI as well as a few additional features. This section does not go into great depth because hopefully using RemoteBox should be reasonably familiar to anybody that has used VirtualBox's native graphical interface. RemoteBox makes heavy use of tool-tips to describe what the options are and do so you're encouraged to read them if you're unsure.

RemoteBox is essentially a web client application. In other words, almost everything you do with RemoteBox requires communicating over the network to the server, even simply clicking a button, so you should ensure your network is good and stable.

5.1 RemoteBox Preferences

Not to be confused with the VirtualBox preferences, this dialog configures preferences specifically for the RemoteBox client.

5.1.1 RDP Client

Tells RemoteBox which RDP client to call when a remote display connection is requested. The RDP client must be available otherwise a display connection will not open. The default value is:

```
rdesktop -T "%n - RemoteBox" %h:%p
```

Any RDP client which supports command line options can be used. Variable substitutions can and should be used where appropriate. Please refer to 5.4 Remote Display for a complete list.

5.1.2 Auto Open Guest's Display on Guest Start

If enabled, then RemoteBox will try to automatically open the remote display for the guest when you power on or resume a guest. If disabled then you will manually need to open the remote display by selecting the "Remote Display" button.

5.1.3 Enable Heartbeat

If enabled then RemoteBox will send a heartbeat to the VirtualBox web service every 60 seconds. This serves two purposes. Firstly to monitor the connection status and secondly to keep the connection alive. You should not disable the heartbeat without being fully aware of the consequences as there is very little reason to do so. In any case, the VirtualBox web service should not be configured with a time-out lower than 60 seconds.

5.1.4 Default Stop Action

This defines what action RemoteBox takes when the "Stop" button is pressed. Please note that whatever option you choose, all actions are still available in the sub-menu next to the "Stop" button. The options are described as follows:

Instant Power Off: Equivalent to removing the power from virtual machine. Use with care.

ACPI Shutdown: An ACPI request is sent to the guest to power it off cleanly. The operating system must support ACPI and be able to respond to shutdown requests otherwise nothing will happen.

Save Guest State: Saves the state of the guest for resuming later. This is approximately equivalent to "Hibernating" and does not require operating system support.

5.2 Connecting to Server

In order to administer the virtual machines and guests, you should connect to the server running the VirtualBox web service. If you experience problems logging on, consider disabling authentication to the web server for testing purposes. Details on how to do this are described elsewhere in this document. Pressing the *Connect* button will open a dialog window, where the following information should be supplied:

5.2.1 URL

The URL of the server to connect to. This is generally of the form `http://<server>:<port>`. If the port number is omitted it will assume the default of 18083. For example:

`http://myserver.home.lan:18083`

or

`http://192.168.1.5:18083`

5.2.2 Username

The username that the VirtualBox web service is running as. If you have authentication disabled, then you can leave it empty.

5.2.3 Password

The password of the user that the VirtualBox web service is running as. If you have authentication disabled you can leave it empty.

5.3 The Main Window

The main window should be familiar to users of VirtualBox. It's worth mentioning however that the status of the guests are not updated in real-time, although this may change in the future. To explicitly see changes which have occurred outside of RemoteBox (e.g. another process powered on a guest) you can use the *Refresh* button.

5.4 Remote Display

RemoteBox makes use of the RDP feature of VirtualBox in order to show the guest's display. To use this option, each guest should be configured with the RDP server enabled. If you intend to run multiple guests simultaneously, then each guest's RDP server should be configured to run on a separate port number. For guests created directly with RemoteBox, the RDP server is automatically enabled and a random port assigned. See section 5.6 Creating New Guests for further information.

By default, RemoteBox uses an RDP client called `rdesktop`. However, you can also use alternative clients such as `freerdp` (ie `xfreerdp`) or you can configure RemoteBox to use your preferred client, providing it accepts command line parameters. In the preferences window of RemoteBox you should enter the path to your RDP client and include any desired options. RemoteBox uses special values which are substituted when the RDP client is launched and these should be used where your RDP client expects to see things such as the host-name. For example, the default is:

```
rdesktop -T "%n - RemoteBox" %h:%p
```

Alternatively, if you wanted to use `xfreerdp` (which is actually better than `rdesktop`) you could use:

```
xfreerdp -g 1024x768 %h:%p
```

The supported special values are:

%h	The hostname of the server running VirtualBox, that RemoteBox is connected to.
%n	The name of the guest. Useful for setting the RDP

	window title
%o	The operating system of the guest
%p	The port number to use when connecting with RDP
%P	The password used to connect to VirtualBox
%U	The username used to connect to VirtualBox

5.5 Remote Display with Sound

It is possible to hear the sound output from the guests' in much the same way you can see their display, providing your RDP client supports sound. Rdesktop for example can use sound if it's compiled to do so. It's advised that you configure the guest to use the dummy audio driver otherwise it will try to use the server's sound output, which may or may not be available. To enable sound with rdesktop simply add the following parameter to the RDP client preferences in RemoteBox.

```
-r sound:local
```

5.6 Creating New Guests

Creating guests is similar to VirtualBox except that RemoteBox will automatically enable the RDP server of the guest and pick a random port between 50000 and 65000 for it to run on. The reason being that each guest should ideally use a different RDP port, particularly if you plan on running more than one simultaneously. This also allows the 'Remote Display' option to work in RemoteBox. If you're unhappy with the chosen port or with the RDP server being enabled, these can be changed in the guest's settings.

5.7 Virtual Media Manager

All media is from the reference point of the server and not the RemoteBox client, so when adding additional media such as CD/DVD images, expect to see the file system layout of the server and not your client machine.

5.8 Installing Guest Additions

If you have not done so already, you should add `VBoxGuestAdditions.iso` to the Virtual Media Manager (VMM). Choose Add DVD/CD, just as you would with any other CD-ROM or DVD image. The ISO is installed by default with your installation of VirtualBox. Once it's available in the VMM, you can attach it to the CD/DVD drive of the guest machine and install the Guest Additions. The default location of the ISO, depends upon your servers operating system. See the table below.

Linux	/usr/share/virtualbox/VBoxGuestAdditions.iso
Windows	C:\Program Files\Oracle\VirtualBox\VBoxGuestAdditions.iso
Mac OS X	/Applications/VirtualBox.app/Contents/MacOS/VBoxGuestAdditions.iso
Solaris	/opt/VirtualBox/additions/VBoxGuestAdditions.iso

5.9 Hot Plugging and Unplugging vCPUs

RemoteBox has the ability to hot plug and hot unplug vCPUs from a guest, even while it is running. This should be considered an experimental feature for the moment. There are a number of pre-requisites which must be met in order for this to work correctly. They are listed as follows:

- The guest must be using hardware virtualization, this is usually the case anyway.

Edit Settings->System->Acceleration->Enable VT-x/AMD-V

- The guest must have CPU hot plugging enabled.

Edit Settings->System->Processor->Allow CPU Hot Plugging

- Most operating systems will require I/O APIC to be enabled. Due to limitations of the Windows operating system, this option should not be changed for a guest running Windows. Windows requires this option to be set, **before** installation. Other operating systems are not affected.

Edit Settings->System->Motherboard->Enable IO APIC

- Lastly, the guest operating system itself must support CPU hot plugging and/or hot unplugging.

The exact process for hot plugging and hot unplugging a CPU is operating system dependant. Many versions of UNIX, including Linux support hot plugging and hot removing CPUs. Windows has very little support for CPU hot plugging and no version of Windows supports CPU hot unplugging. You should consult the documentation for the guest operating system to find the exact procedure and its support status. A general set of guidelines follows.

The general process for hot plugging a vCPU is:

- Enable the vCPU in RemoteBox
- At this point, some operating systems may automatically detect it and bring it online, others will require you to bring the CPU online manually.

The generally process for hot unplugging a vCPU is:

- Disable or offline the vCPU in the guest **first**.
- Disable the vCPU in RemoteBox

6 FAQ & Troubleshooting

If you experience problems when using RemoteBox, viewing the web service logs or the guest logs on the server may provide an additional source of information. Sometimes, restarting the web service may help.

6.1.1 Does RemoteBox need to be running on the same operating system as VirtualBox?

No, the RemoteBox client and VirtualBox installation can reside on different operating systems. For example, one can install RemoteBox on Linux but administer a Windows installation of VirtualBox.

6.1.2 Can I use RemoteBox to administer VirtualBox on the same machine?

Yes. Just ensure the VirtualBox web service is running on the same machine and by default connect to <http://localhost:18083> with RemoteBox

6.1.3 Does RemoteBox run on Windows?

At the moment no perl distribution for Windows, that I'm aware of, supports the perl modules required by RemoteBox. If you get RemoteBox to run on Windows, please let me know.

6.1.4 Does RemoteBox run on my favourite flavour of 'UNIX'?

Probably, however many flavours of UNIX (particularly commercial flavours) do not come with the appropriate dependencies as standard, nor have a repository for the easy installation of them. This means in all likelihood, you'll have to 'roll your own'.

6.1.5 How can I force set the remote display size for the guest?

Use the “Set Video Hint” option in the machine menu and choose a pre-defined resolution or choose your own. Providing the guest has the guest additions installed and enough Video RAM configured to support the resolution it should switch resolution. This may also depend somewhat on how compliant your RDP client is but it works fine with rdesktop

6.1.6 Can I convert a hard disk image to another format?

Yes. Open the VMM and ensure the “Hard Disk” tab is select. Choose the hard disk to want to copy and convert. Select the “Copy & Convert” option and select the format you require. You will be prompted where you would like to save the new image. This operation will not alter the existing image.

6.1.7 Why is RemoteBox restricted to certain versions of VirtualBox?

VirtualBox versions are generally of the form Major.Minor.Micro (e.g. 3.2.2). VirtualBox only guarantees API compatibility between versions if it is the Micro suffix which has changed. For example 3.1.6 is compatible with 3.1.8, but 3.1.8 is not entirely compatible with 3.2.0. In order to reduce code complexity RemoteBox only targets the latest version of the API at the time of release. It will warn you, if you use an incompatible version but you may experience problems if you choose to continue.

6.1.8 Why are the mouse pointers are out of sync when using the Remote Display?

To enable mouse synchronisation, guest additions should be installed and running within the guest. If you cannot enable guest additions because you're installing an operating system or there are no guest additions for your operating system then providing your guest has USB enabled and it supports USB then change the mouse type to “USB Tablet”.

6.1.9 When I try to open the manual in RemoteBox, nothing is displayed...

RemoteBox requires the `xdg-open` command which is part of the `xdg-utils` package. This package is usually installed by default on most distributions, but if not, please install it along with an appropriate PDF viewer.

6.1.10 I run VirtualBox 4.1.X, what version of RemoteBox is required?

The last version of RemoteBox to support VirtualBox 4.1.X was version 1.3. Please note that old versions of RemoteBox are not supported or updated.

6.1.11 I run VirtualBox 4.0.X, what version of RemoteBox is required?

The last version of RemoteBox to support VirtualBox 4.0.X was version 0.9. Please note that old versions of RemoteBox are not supported or updated.

6.1.12 I run VirtualBox 3.2.X, what version of RemoteBox is required?

The last version of RemoteBox to support VirtualBox 3.2.X was version 0.5. Versions of VirtualBox earlier than 3.2.0 are not supported by any version of RemoteBox. Please note that old versions of RemoteBox are not supported or updated.

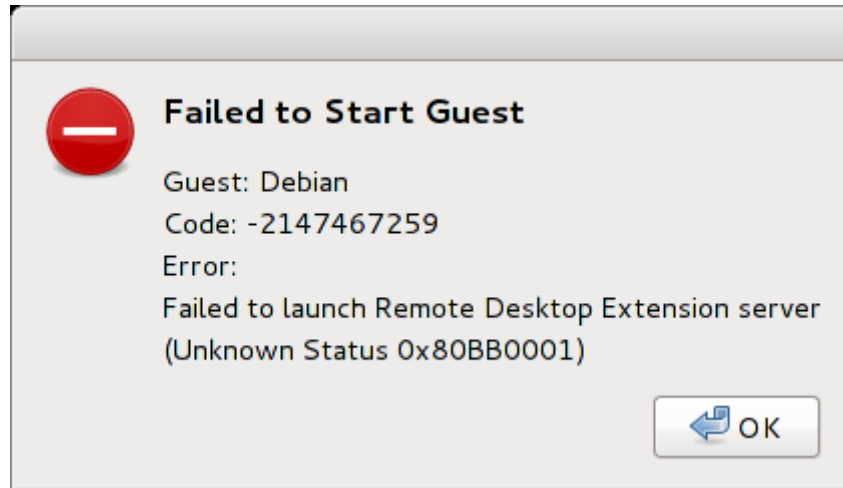
6.1.13 I run VirtualBox 3.1.X or earlier, what version of RemoteBox is required?

Versions of VirtualBox earlier than 3.2.0 are not supported by any version of RemoteBox.

6.1.14 I have a version of GTK older than 2.22. Can I still use RemoteBox?

Yes, RemoteBox v1.1 and earlier require a minimum of GTK v2.16. Please note that old versions of RemoteBox are not supported or updated.

6.1.15 *I get an error message similar to the following:*



You do not have the Oracle Extension Pack installed or you have an old version of the pack installed. Please download the appropriate Oracle Extension Pack for your version of VirtualBox.

6.1.16 *I repeatedly get disconnected from the server, whats wrong?*

Unless you have a particularly bad network, you probably have either a low timeout configured on the web service, or you have disabled the heartbeat in RemoteBox. Please ensure the heartbeat is enabled in RemoteBox (*File->Preferences->Heartbeat*). Also ensure that the web service either has timeouts disabled or is not configured lower than 60 seconds.

7 Licence

RemoteBox itself, is published under the terms of the “GNU GENERAL PUBLIC LICENSE, v2” or any later version. The use of RemoteBox in whole or in part constitutes acceptance of these terms. For further information, please see <http://www.gnu.org/licenses/gpl-2.0.html>

RemoteBox is shipped with icons that are © Copyright Sun Microsystems and originate from the VirtualBox Open Source Edition, released under the GPL.

8 Disclaimer

For the full details, please see the “NO WARRANTY” section of the GPL. In short, you are entirely and wholly responsible for all consequences resulting from your use, or misuse of RemoteBox. Including but not limited to, loss of or damage to data, hardware, money and all consequences that arise as a result. In other words, if RemoteBox breaks something, you get to keep the pieces! ☺

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9 Contact

If you have any queries or bug reports regarding RemoteBox, please send an email to:

packages [AT] amiga-hardware DOT com